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METEOROLOGICAL DATA REPORT

NIKE-HYDAC MK 12 STV (SR-038)
(20 September 1966)

BY

JOHN M. SHARPE

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

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UNITED STATES ARMY ELECTRONICS COMMAND

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DA Task IV650212A127-02

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ABSTRACT

Meteorological data gathered for the launching of Nike-Hydac, MK 12 STV (SR-038) are presented for the Air Force Ballistic Missile Re-entry Systems Office, the General Electric Company and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.

CONTENTS

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INTRODUCTION

Nike-Hydac, MK 12 STV (SR-038) was launched from Launch Complex 33, L-314, White Sands Missile Range (WSMR), New Mexico, at 0913 hours MST, 20 September 1966.

Meteorological data used in conjunction with theoretical calculations to predict rocket impact were collected by the Meteorological Support Division, Atmospheric Sciences Laboratory (ASL), WSMR, New Mexico. The Ballistic Meteorologists for this firing were John M. Sharpe and SFC Leon H. Allen.

DISCUSSION

Wind data for the first 216 feet above the Surface were obtained from a system composed of 5 Aerovanes mounted on a 200-foot tower and cabled to component indicators.

From 216 to 4,000 feet above the surface, wind data were obtained from double-theodolite-observed balloon ascents.

Temperature, pressure, and humidity data, along with upper wind data from 4,000 to 80,738 feet above the surface, were obtained from standard rawinsonde observations.

Mean wind component values in each ballistic zone were determined from vertical cross sections by the equal-area method.

Theoretical rocket performance values and ballistic factors as a function of altitude were provided by ASL, and are the basis for data appearing in Table VIII.

PAYLOAD		210	Pounds
CORIOLIS DISPLACEMENT	WEST	5.0	Miles
SECOND-STAGE IGNITION	TIME	20.2	Seconds
	ALTITUDE	35,975	Feet MSL
PEAK	TIME	236.2	Seconds
	ALTITUDE	723,966	Feet MSL
UNIT WIND EFFECT	RANGE	2.295	Miles/MPH
	CROSS	2.211	Miles/MPH
			Miles/MPH
TOWER TILT EFFECT		14.2	Miles/Degree

TABLE I. THEORETICAL ROCKET PERFORMANCE VALUES
NIKE-HYDAC, MK 12 STV (SR-038)

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
11- 60	.138
60- 108	.094
108- 148	.059
148- 184	.043
184- 216	.031
216- 300	.066
300- 400	.058
400- 600	.080
600- 800	.060
800-1000	.050
1000-1400	.075
1400-2000	.069

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
2000- 2500	.035
2500- 3000	.024
3000- 3500	.014
3500- 4000	.005
4000- 4315	-.001
4315- 9000	-.015
9000-15000	-.018
15000-21000	-.016
21000-26000	-.014
26000-31975	-.005
31975-34000	.070

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
34000-36000	.033
36000-41000	.036
41000-46000	.013
46000-51000	.006
51000-56000	.004
56000-61000	.003
61000-66000	.002
66000-72738	.001
72738-76000	-.000
76000-86000	-.000
86000-96000	-.000

TABLE II. BALLISTIC FACTORS
NIKE-HYDAC, MK 12 STV (SR-038)

AERO-VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR									
	1 0700 MST		2 0730 MST		3 0800 MST		4 0815 MST		5 0830 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	0.0	0.0	3.0N	1.0E	2.0N	1.0W	1.0S	1.0E	1.0S	1.0E
2	1.0N	0.0	4.0	1.0	2.0	1.0	0.0	1.0W	1.0	1.0
3	2.0	0.0	3.0	1.0	2.0	2.0	0.0	2.0	2.0	1.0
4	3.0	0.0	4.0	1.0	3.0	0.0	1.0N	0.0	2.0	1.0
5	4.0	0.0	3.0	0.0	0.0	0.0	1.0	3.0W	1.0	1.0

AERO-VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR									
	6 0840 MST		7 0850 MST		8 0856 MST		9 0913 MST		10 0919 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	5.0S	2.0E	7.0S	5.0E	6.0S	1.0W	5.0S	1.0E	5.0S	7.0E
2	3.0	3.0	8.0	3.0	5.0	1.0	4.0	0.0	6.0	6.0
3	5.0	5.0	7.0	2.0	6.0	1.0	4.0	1.0E	6.0	4.0
4	4.0	7.0	6.0	5.0	7.0	2.0E	3.0	3.0	6.0	9.0
5	1.0	1.0	4.0	5.0	5.0	1.0E	4.0	1.0	5.0	5.0

TABLE III. ANEMOMETER WIND SPEED AND DIRECTION
NIKE-HYDAC, MK 12 STV (SR-038)

* Heights corresponding to Aerovane Numbers: 1 = 35 Feet 2 = 88 Feet 3 = 128 Feet 4 = 168 Feet 5 = 200 Feet

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR									
	1 0700 MST		2 0730 MST		3 0800 MST		4 0815 MST		5 0830 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216- 300	3.5N	1.0E	3.0N	1.0E	0.5N	1.0E	1.0N	1.5W	1.5S	2.5E
300- 400	2.0	3.0	2.5	3.5	1.0	2.5	0.0	2.0E	1.5	5.0
400- 600	0.0	5.5	2.0	3.0	0.0	3.0	0.5S	3.0	1.0	6.5
600- 800	0.5S	6.0	2.0	2.0	1.0S	3.5	1.0	3.0	1.0	6.5
800-1000	1.5	7.0	2.0S	3.0	2.5	4.0	2.5	5.0	1.5	7.0
1000-1400	1.0	6.0	3.0	7.0	4.0	5.5	4.0	8.5	3.5	8.5
1400-2000	2.0N	3.0	0.0	8.0	1.5	0.0	4.0	7.0	5.0	8.0
2000-2500	1.5	3.0	1.0N	6.5	2.0	4.0E	2.5	4.0	4.0	5.0
2500-3000	1.5S	3.5	2.5S	4.0	4.0	2.5	5.0	3.0	4.0	3.0
3000-4000	6.5	1.0	9.0	2.5	2.5	2.0	6.0	3.0	7.5	2.0

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA
NIKE-HYDAC, MK 12 STV (SR-038)

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR									
	6 0840 MST		7 0850 MST		8 0857 MST		T-TIME 0919 MST		MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216- 300	3.0S	2.5E	4.0N	5.0E	5.0S	1.5E	7.0S	6.5E		
300- 400	5.0	5.0	4.5	5.0	5.0	2.0	8.0	8.0		
400- 600	5.5	6.5	5.0	5.0	5.0	3.0	8.0	7.0		
600- 800	4.0	6.5	5.0	4.5	5.5	4.0	7.5	6.0		
800-1000	3.5	6.0	5.0	3.5	6.0	5.0	8.0	6.0		
1000-1400	4.0	4.0	5.5	4.0	6.0	8.0	7.5	5.5		
1400-2000	7.0	5.5	6.0	5.0	6.0	9.0	5.5	3.5		
2000-2500	7.0	5.0	6.5	4.5	6.0	6.0	6.0	3.0		
2500-3000	5.0	3.5	6.5	1.5	7.0	3.5	7.0	3.5		
3000-4000	6.5	3.0	7.0	2.0	10.0	3.5	8.5	4.0		

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA (Cont)
NIKE-HYDAC, MK 12 STV (SR-038)

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN KNOTS					
	[1] 0615 MST		[2] 0955 MST			
	N-S	E-W	N-S	E-W	N-S	E-W
4000- 4315	5.0S	1.0E	8.0S	0.0		
4315- 9000	6.0	2.0	3.0	4.0E		
9000-15000	6.0	3.5	6.0N	7.0		
15000-21000	8.5N	3.0W	6.0	0.0		
21000-26000	11.5	9.5	10.5	9.0W		
26000-31975	7.5	20.5	10.5	18.0		
31975-34000	0.0	31.0	9.5	26.0		
34000-36000	0.0	33.0	10.0	27.0		
36000-41000	6.5N	36.5	5.5	32.5		
41000-46000	10.0	28.0	10.0	28.0		
46000-51000	15.0	2.5	0.0	14.0		
51000-56000	1.5S	8.0E	1.5S	8.5E		
56000-61000	2.5N	14.0	0.0	18.0		
61000-66000	6.0	17.0	0.0	13.0		
66000-72738	4.0	23.5	3.0N	15.5		

TABLE V. RAWINSONDE-MEASURED WIND DATA
NIKE-HYDAC, MK 12 STV (SR-038)

STATION ALTITUDE 3989.0 FEET MSL
20 SEPT.66 0615 HRS MST
ASCENSION NO. 726

UPPER AIR DATA
0890003902
WHITE SANDS SITE
TABLE VI

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3989.0	881.8	16.3	14.8	90.0	1053.9	664.8	0.	0.	1.000310
4000.0	881.5	16.4	14.8	89.5	1053.1	665.0	0.7	0.0	1.000310
4500.0	866.0	19.3	14.4	72.8	1024.2	668.3	34.5	0.7	1.000301
5000.0	850.7	18.8	13.1	69.0	1008.4	667.6	68.3	1.5	1.000291
5500.0	835.7	18.3	11.7	65.2	992.9	666.8	102.1	2.2	1.000283
6000.0	821.0	17.8	10.4	61.4	977.5	666.1	135.8	2.9	1.000274
6500.0	806.6	17.3	8.9	57.6	962.4	665.4	158.6	4.3	1.000266
7000.0	792.4	16.8	7.4	53.8	947.6	664.6	174.0	6.0	1.000258
7500.0	778.4	16.3	6.3	51.4	932.8	663.9	181.4	6.9	1.000251
8000.0	764.6	15.7	6.2	53.0	917.9	663.4	187.6	7.4	1.000248
8500.0	751.0	14.9	6.2	55.7	904.1	662.4	191.2	6.9	1.000245
9000.0	737.5	13.5	6.0	60.4	892.1	660.8	189.3	5.9	1.000242
9500.0	724.2	12.1	5.8	65.2	880.4	659.2	181.2	4.7	1.000239
10000.0	711.2	10.7	5.5	69.9	868.8	657.6	165.3	4.3	1.000236
10500.0	698.4	9.3	5.1	74.6	857.4	656.0	145.0	4.5	1.000233
11000.0	685.8	7.8	1.6	65.0	847.3	653.9	129.2	4.8	1.000222
11500.0	673.2	6.6	0.8	66.4	835.5	652.4	115.4	5.2	1.000217
12000.0	660.8	5.4	-0.1	67.8	823.8	651.0	113.5	6.0	1.000213
12500.0	648.7	4.2	-1.5	66.3	812.2	649.5	115.3	7.0	1.000208
13000.0	636.6	3.3	-2.9	64.1	800.1	648.3	114.4	8.0	1.000203
13500.0	624.8	2.2	-2.2	72.9	788.2	647.1	113.1	9.0	1.000202
14000.0	613.1	1.2	-5.4	61.3	776.6	645.8	116.5	10.5	1.000194
14500.0	601.6	0.2	-9.1	49.7	765.3	644.4	119.2	11.7	1.000186
15000.0	590.3	-0.9	-9.5	52.1	754.0	643.1	119.3	11.4	1.000183
15500.0	579.1	-2.1	-9.5	56.8	742.9	641.7	123.1	10.4	1.000181
16000.0	568.2	-2.8	-13.7	43.1	731.2	640.7	130.9	8.6	1.000174
16500.0	557.3	-3.4	-20.5	25.5	719.2	639.8	146.9	6.1	1.000167
17000.0	546.7	-4.0	-31.2	10.0	707.4	639.0	165.8	3.5	1.000160
17500.0	536.3	-4.7	-16.1	40.7	695.1	638.4	202.6	2.7	1.000164
18000.0	526.0	-5.4	-28.0	15.1	684.1	637.3	240.1	2.4	1.000156

STATION ALTITUDE 3989.0 FEET MSL
20 SEPT.66 0615 HRS MST
ASCENSION NO. 726

UPPER AIR DATA
0890003902
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
18500.0	515.8	-6.3	-23.7	23.8	673.0	636.3	276.7	3.9	1.000155
19000.0	505.9	-7.1	-20.9	32.5	662.0	635.3	304.0	5.2	1.000154
19500.0	496.1	-8.0	-19.0	41.2	651.3	634.4	313.0	6.0	1.000152
20000.0	486.5	-9.0	-18.4	46.9	641.0	633.2	321.7	7.4	1.000151
20500.0	477.0	-9.9	-21.1	39.9	630.8	632.0	330.1	9.2	1.000147
21000.0	467.7	-10.8	-25.4	28.9	620.6	630.9	339.7	9.8	1.000142
21500.0	458.5	-11.6	-31.3	18.0	610.6	629.8	348.7	10.3	1.000138
22000.0	449.5	-12.5	-37.3	10.6	600.8	628.7	353.3	10.6	1.000135
22500.0	440.5	-13.7	-36.3	13.0	591.5	627.2	356.5	10.7	1.000133
23000.0	431.7	-14.9	-35.7	15.3	582.4	625.8	355.9	10.0	1.000131
23500.0	423.1	-16.1	-35.3	17.6	573.5	624.3	353.9	9.6	1.000129
24000.0	414.7	-17.3	-35.0	20.0	564.7	622.9	349.3	9.4	1.000128
24500.0	406.4	-18.5	-35.0	22.3	556.0	621.4	1.7	17.1	1.000126
25000.0	398.2	-19.6	-37.3	19.3	547.0	620.1	34.3	33.9	1.000123
25500.0	390.1	-20.5	-41.1	14.1	537.9	619.0	24.5	31.5	1.000121
26000.0	382.2	-21.4	-45.0	10.0	529.0	617.8	346.3	16.1	1.000118
26500.0	374.3	-22.5	-45.9	10.0	520.2	616.5	333.5	13.2	1.000116
27000.0	366.5	-23.5	-46.7	10.0	511.5	615.3	327.0	14.3	1.000114
27500.0	359.0	-24.5	-47.5	10.0	503.0	614.0	287.4	32.0	1.000113
28000.0	351.5	-25.6	-48.3	10.0	494.7	612.7	269.4	38.4	1.000111
28500.0	344.3	-26.6	-49.2	10.0	486.5	611.4	294.9	21.6	1.000109
29000.0	337.1	-27.6	-50.0	10.0	478.4	610.1	303.8	15.3	1.000107
29500.0	330.2	-28.7	-50.8	10.0	470.5	608.8	302.8	15.3	1.000105
30000.0	323.1	-30.0	-52.7	9.0**	462.8	607.2	301.3	16.1	1.000103
30500.0	316.1	-31.3	-54.8	8.0**	455.3	605.6	300.1	16.7	1.000102
31000.0	309.3	-32.6	-56.9	7.0**	447.9	603.9	299.8	16.8	1.000100
31500.0	302.6	-33.9	-59.1	6.0**	440.6	602.3	298.5	17.6	1.000098
32000.0	296.1	-35.2	-61.6	5.0**	433.5	600.7	296.3	19.0	1.000097
32500.0	289.7	-36.5	-64.2	4.0**	426.5	599.0	293.8	20.3	1.000095
33000.0	283.5	-37.8	-67.3	2.9**	419.6	597.4	291.2	21.6	1.000093

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
20 SEPT.66 0615 HRS MST
ASCENSION NO. 726

UPPER AIR DATA
0890003902
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
33500.0	277.3	-39.1	-71.2	1.9**	412.9	595.7	288.6	23.2	1.000092
34000.0	271.4	-40.4	-76.9	0.9**	406.2	594.0	285.9	24.7	1.000090
34500.0	265.5	-41.7	0.	-0. **	399.7	592.4	282.5	25.7	1.000089
35000.0	259.6	-42.9	0.	-0. **	392.7	590.9	280.2	26.6	1.000087
35500.0	253.8	-44.0	0.	-0. **	385.9	589.4	279.6	27.2	1.000086
36000.0	248.1	-45.2	0.	-0. **	379.2	587.9	277.7	28.7	1.000084
36500.0	242.5	-46.4	0.	-0. **	372.6	586.4	275.1	30.8	1.000083
37000.0	236.9	-47.4	0.	-0. **	365.6	585.1	274.2	32.1	1.000081
37500.0	231.5	-48.3	0.	-0. **	358.7	583.8	273.7	33.2	1.000080
38000.0	226.1	-49.3	0.	-0. **	352.0	582.5	273.0	34.5	1.000078
38500.0	220.9	-50.3	0.	-0. **	345.4	581.3	272.3	35.8	1.000077
39000.0	215.8	-51.3	0.	-0. **	338.9	580.0	273.5	36.3	1.000075
39500.0	210.8	-52.3	0.	-0. **	332.6	578.7	275.0	36.7	1.000074
40000.0	206.0	-53.3	0.	-0. **	326.3	577.4	276.3	37.6	1.000073
40500.0	201.2	-54.2	0.	-0. **	320.2	576.1	277.5	38.6	1.000071
41000.0	196.6	-55.2	0.	-0. **	314.3	574.8	279.5	38.5	1.000070
41500.0	192.0	-56.2	0.	-0. **	308.4	573.5	281.3	38.4	1.000069
42000.0	187.4	-57.3	0.	-0. **	302.5	572.0	282.5	38.3	1.000067
42500.0	182.8	-58.5	0.	-0. **	296.7	570.5	283.8	38.3	1.000066
43000.0	178.4	-59.6	0.	-0. **	291.1	569.1	285.3	38.5	1.000065
43500.0	174.1	-60.7	0.	-0. **	285.6	567.6	285.7	38.4	1.000064
44000.0	170.0	-61.8	0.	-0. **	280.2	566.1	285.7	38.1	1.000062
44500.0	165.9	-62.9	0.	-0. **	274.8	564.6	285.4	37.3	1.000061
45000.0	161.9	-64.0	0.	-0. **	269.7	563.1	285.0	36.3	1.000060
45500.0	158.0	-65.1	0.	-0. **	264.6	561.6	284.5	34.3	1.000059
46000.0	154.1	-65.2	0.	-0. **	258.2	561.5	284.1	32.5	1.000057
46500.0	150.3	-65.3	0.	-0. **	251.9	561.4	284.5	31.5	1.000056
47000.0	146.6	-66.3	0.	-0. **	246.9	560.0	285.3	30.3	1.000055
47500.0	142.9	-67.4	0.	-0. **	242.1	558.5	286.9	28.2	1.000054
48000.0	139.4	-68.5	0.	-0. **	237.3	557.0	288.4	26.2	1.000053

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
20 SEPT.66 0615 HRS MST
ASCENSION NO. 726

UPPER AIR DATA
0890003902
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
48500.0	135.9	-69.5	0.	-0. **	232.5	555.7	289.4	24.6	1.000052
49000.0	132.5	-70.1	0.	-0. **	227.3	554.9	290.3	22.9	1.000051
49500.0	129.1	-70.7	0.	-0. **	222.2	554.0	291.2	21.3	1.000049
50000.0	125.8	-71.3	0.	-0. **	217.2	553.2	295.0	20.3	1.000048
50500.0	122.7	-71.9	0.	-0. **	212.3	552.4	302.0	20.1	1.000047
51000.0	119.6	-72.5	0.	-0. **	207.6	551.6	309.1	19.5	1.000046
51500.0	116.5	-73.2	0.	-0. **	203.0	550.6	316.3	18.6	1.000045
52000.0	113.5	-73.9	0.	-0. **	198.5	549.6	326.1	16.8	1.000044
52500.0	110.6	-73.8	0.	-0. **	193.3	549.8	338.2	14.2	1.000043
53000.0	107.8	-72.6	0.	-0. **	187.3	551.4	355.2	11.2	1.000042
53500.0	105.1	-71.5	0.	-0. **	181.5	553.0	16.0	7.8	1.000040
54000.0	102.4	-70.6	0.	-0. **	176.2	554.1	37.6	6.7	1.000039
54500.0	99.8	-70.9	0.	-0. **	171.9	553.8	59.5	6.8	1.000038
55000.0	97.3	-70.7	0.	-0. **	167.5	554.0	75.3	7.3	1.000037
55500.0	94.9	-69.6	0.	-0. **	162.4	555.5	90.1	8.0	1.000036
56000.0	92.5	-68.5	0.	-0. **	157.5	557.0	104.7	8.5	1.000035
56500.0	90.2	-67.4	0.	-0. **	152.7	558.5	118.1	9.0	1.000034
57000.0	88.0	-66.3	0.	-0. **	148.1	560.0	127.9	9.8	1.000033
57500.0	85.8	-65.3	0.	-0. **	143.8	561.4	130.6	10.2	1.000032
58000.0	83.7	-65.2	0.	-0. **	140.2	561.5	123.2	10.1	1.000031
58500.0	81.6	-65.1	0.	-0. **	136.7	561.6	112.9	10.2	1.000030
59000.0	79.6	-65.0	0.	-0. **	133.3	561.8	100.0	10.4	1.000030
59500.0	77.7	-64.9	0.	-0. **	129.9	561.9	92.4	11.0	1.000029
60000.0	75.8	-64.8	0.	-0. **	126.7	562.0	87.7	12.0	1.000028
60500.0	73.9	-64.7	0.	-0. **	123.5	562.2	84.0	11.5	1.000028
61000.0	72.1	-64.6	0.	-0. **	120.4	562.3	80.6	10.5	1.000027
61500.0	70.3	-64.1	0.	-0. **	117.3	562.9	78.2	11.1	1.000026
62000.0	68.7	-63.7	0.	-0. **	114.2	563.6	76.2	12.5	1.000025
62500.0	67.0	-63.2	0.	-0. **	111.2	564.2	75.6	14.2	1.000025
63000.0	65.4	-62.7	0.	-0. **	108.3	564.9	75.9	16.2	1.000024

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
20 SEPT.66 0615 HRS MST
ASCENSION NO. 726

UPPER AIR DATA
0890003902
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
63500.0	63.8	-62.2	0.	-0. **	105.4	565.5	77.2	17.4	1.000023
64000.0	62.3	-61.7	0.	-0. **	102.6	566.2	79.5	17.8	1.000023
64500.0	60.8	-61.2	0.	-0. **	99.9	566.9	79.5	17.7	1.000022
65000.0	59.3	-60.7	0.	-0. **	97.3	567.5	76.6	16.6	1.000022
65500.0	57.9	-60.2	0.	-0. **	94.8	568.1	71.5	15.7	1.000021
66000.0	56.5	-59.8	0.	-0. **	92.3	568.8	63.0	14.8	1.000021
66500.0	55.2	-59.3	0.	-0. **	89.9	569.4	57.3	14.5	1.000020
67000.0	53.8	-58.8	0.	-0. **	87.5	570.1	56.0	15.1	1.000019
67500.0	52.5	-58.3	0.	-0. **	85.2	570.7	56.9	15.2	1.000019
68000.0	51.3	-57.8	0.	-0. **	83.0	571.4	61.3	14.5	1.000018
68500.0	50.0	-57.3	0.	-0. **	80.8	572.0	68.5	13.9	1.000018
69000.0	48.8	-56.8	0.	-0. **	78.7	572.7	80.5	13.4	1.000018
69500.0	47.7	-56.5	0.	-0. **	76.7	573.1	90.3	13.2	1.000017
70000.0	46.6	-56.5	0.	-0. **	74.9	573.1	95.8	13.3	1.000017
70500.0	45.5	-56.5	0.	-0. **	73.1	573.1	99.2	13.5	1.000016
71000.0	44.4	-56.5	0.	-0. **	71.4	573.1	97.9	14.0	1.000016
71500.0	43.3	-56.5	0.	-0. **	69.7	573.1	95.6	14.5	1.000016
72000.0	42.3	-56.5	0.	-0. **	68.1	573.1	91.0	14.8	1.000015
72500.0	41.3	-56.5	0.	-0. **	66.4	573.1	86.1	15.4	1.000015
73000.0	40.3	-56.5	0.	-0. **	64.9	573.1	80.4	16.7	1.000014
73500.0	39.4	-56.5	0.	-0. **	63.4	573.1	75.4	17.9	1.000014
74000.0	38.5	-56.1	0.	-0. **	61.8	573.6	73.8	18.5	1.000014
74500.0	37.6	-55.4	0.	-0. **	60.1	574.5	72.3	19.1	1.000013
75000.0	36.7	-54.8	0.	-0. **	58.5	575.4	75.7	20.5	1.000013
75500.0	35.8	-54.1	0.	-0. **	57.0	576.3	79.3	21.8	1.000013
76000.0	35.0	-53.4	0.	-0. **	55.5	577.2	83.0	21.4	1.000012
76500.0	34.2	-52.8	0.	-0. **	54.0	578.1	86.7	20.0	1.000012
77000.0	33.4	-52.6	0.	-0. **	52.7	578.3	90.1	18.7	1.000012
77500.0	32.6	-52.5	0.	-0. **	51.5	578.4	92.9	17.5	1.000011
78000.0	31.9	-52.4	0.	-0. **	50.3	578.5	95.4	16.2	1.000011

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
20 SEPT.66 0615 HRS MST
ASCENSION NO. 726

UPPER AIR DATA
0890003902
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
78500.0	31.1	-52.4	0.	-0. **	49.1	578.6	87.6	14.4	1.000011
79000.0	30.4	-52.3	0.	-0. **	48.0	578.6	79.8	12.5	1.000011
79500.0	29.7	-52.3	0.	-0. **	46.9	578.7	75.0	12.1	1.000010
80000.0	29.0	-52.2	0.	-0. **	45.8	578.8	71.3	12.2	1.000010
80500.0	28.4	-51.7	0.	-0. **	44.6	579.5	68.1	12.6	1.000010
81000.0	27.7	-51.2	0.	-0. **	43.5	580.1	65.7	13.4	1.000010
81500.0	27.1	-50.6	0.	-0. **	42.4	580.8	63.3	14.2	1.000009
82000.0	26.5	-50.1	0.	-0. **	41.3	581.5	64.2	14.8	1.000009
82500.0	25.9	-49.6	0.	-0. **	40.3	582.2	65.9	15.4	1.000009
83000.0	25.3	-49.1	0.	-0. **	39.3	582.9	67.6	15.9	1.000009
83500.0	24.7	-48.5	0.	-0. **	38.3	583.6	68.6	16.4	1.000009
84000.0	24.1	-48.0	0.	-0. **	37.4	584.2	69.6	16.9	1.000008
84500.0	23.6	-47.5	0.	-0. **	36.4	584.9	71.0	17.3	1.000008
85000.0	23.0	-47.0	0.	-0. **	35.5	585.6	73.8	17.0	1.000008
85500.0	22.5	-46.4	0.	-0. **	34.6	586.3	76.5	16.7	1.000008
86000.0	22.0	-45.9	0.	-0. **	33.7	587.0	80.9	15.9	1.000008
86500.0	21.5	-45.9	0.	-0. **	33.0	587.0	87.0	14.6	1.000007
87000.0	21.0	-45.9	0.	-0. **	32.2	587.0	93.0	13.3	1.000007
87500.0	20.6	-45.9	0.	-0. **	31.5	587.0	96.8	12.5	1.000007
88000.0	20.1	-45.9	0.	-0. **	30.8	587.0	99.6	12.0	1.000007
88500.0	19.6	-45.9	0.	-0. **	30.1	587.0	102.5	11.4	1.000007
89000.0	19.2	-45.9	0.	-0. **	29.4	587.0	105.3	10.6	1.000007
89500.0	18.8	-45.9	0.	-0. **	28.8	587.0	108.1	9.7	1.000006
90000.0	18.4	-45.9	0.	-0. **	28.1	587.0	109.7	8.9	1.000006
90500.0	17.9	-45.9	0.	-0. **	27.5	587.0	102.5	8.7	1.000006
91000.0	17.5	-45.9	0.	-0. **	26.9	587.0	95.2	8.6	1.000006
91500.0	17.1	-45.9	0.	-0. **	26.3	587.0	87.8	8.3	1.000006
92000.0	16.8	-45.9	0.	-0. **	25.7	587.0	80.0	7.7	1.000006
92500.0	16.4	-45.9	0.	-0. **	25.1	587.0	72.3	7.1	1.000006
93000.0	16.0	-45.9	0.	-0. **	24.6	587.0	64.3	6.8	1.000005

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
20 SEPT.66 0615 HRS MST
ASCENSION NO. 726

UPPER AIR DATA
0890003902
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 135,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
93500.0	15.7	-45.5	0.	-0. **	24.0	587.4	55.7	7.4	1.000005
94000.0	15.3	-45.2	0.	-0. **	23.4	587.9	47.1	8.0	1.000005
94500.0	15.0	-44.8	0.	-0. **	22.9	588.4	38.4	8.6	1.000005
95000.0	14.7	-44.4	0.	-0. **	22.3	588.9	33.1	9.3	1.000005
95500.0	14.3	-44.1	0.	-0. **	21.8	589.3	30.4	10.2	1.000005
96000.0	14.0	-43.7	0.	-0. **	21.3	589.8	27.6	11.0	1.000005
96500.0	13.7	-43.3	0.	-0. **	20.8	590.3	24.9	11.9	1.000005
97000.0	13.4	-43.0	0.	-0. **	20.3	590.8	23.3	12.7	1.000005
97500.0	13.1	-42.6	0.	-0. **	19.8	591.2	24.1	13.6	1.000004
98000.0	12.8	-42.2	0.	-0. **	19.4	591.7	24.8	14.5	1.000004
98500.0	12.6	-41.8	0.	-0. **	18.9	592.2	25.6	15.4	1.000004
99000.0	12.3	-41.5	0.	-0. **	18.5	592.7	26.4	16.3	1.000004
99500.0	12.0	-41.1	0.	-0. **	18.0	593.1	27.8	16.9	1.000004
100000.0	11.8	-40.7	0.	-0. **	17.6	593.6	29.2	17.5	1.000004
100500.0	11.5	-40.4	0.	-0. **	17.2	594.1	30.5	18.2	1.000004
101000.0	11.2	-40.0	0.	-0. **	16.8	594.6	31.9	18.8	1.000004
101500.0	11.0	-39.6	0.	-0. **	16.4	595.0	32.4	19.4	1.000004
102000.0	10.8	-39.3	0.	-0. **	16.0	595.5	32.8	20.0	1.000004
102500.0	10.5	-38.9	0.	-0. **	15.6	596.0	33.2	20.6	1.000003
103000.0	10.3	-38.5	0.	-0. **	15.3	596.4	33.6	21.2	1.000003
103500.0	10.1	-38.1	0.	-0. **	14.9	596.9	34.6	21.2	1.000003
104000.0	9.8	-37.8	0.	-0. **	14.6	597.4	35.8	20.9	1.000003
104500.0	9.6	-37.4	0.	-0. **	14.2	597.9	37.1	20.6	1.000003
105000.0	9.4	-37.0	0.	-0. **	13.9	598.3	38.3	20.3	1.000003
105500.0	9.2	-36.7	0.	-0. **	13.6	598.8	41.0	20.2	1.000003
106000.0	9.0	-36.3	0.	-0. **	13.3	599.3	45.4	20.6	1.000003
106500.0	8.8	-35.9	0.	-0. **	12.9	599.7	49.8	20.9	1.000003
107000.0	8.6	-35.6	0.	-0. **	12.6	600.2	54.1	21.2	1.000003
107500.0	8.4	-35.2	0.	-0. **	12.3	600.7	59.3	21.2	1.000003
108000.0	8.2	-34.8	0.	-0. **	12.1	601.1	66.8	20.3	1.000003

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
20 SEPT.66 0615 HRS MST
ASCENSION NO. 726

UPPER AIR DATA
0890003902
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
108500.0	8.1	-34.4	0.	-0. **	11.8	601.6	74.3	19.4	1.000003
109000.0	7.9	-34.2	0.	-0. **	11.5	601.9	81.8	18.4	1.000003
109500.0	7.7	-34.1	0.	-0. **	11.3	602.0	89.4	17.5	1.000003
110000.0	7.6	-34.0	0.	-0. **	11.0	602.1	97.1	17.1	1.000002
110500.0	7.4	-33.9	0.	-0. **	10.8	602.2	104.8	16.8	1.000002
111000.0	7.2	-33.9	0.	-0. **	10.5	602.3	112.5	16.4	1.000002
111500.0	7.1	-33.8	0.	-0. **	10.3	602.5	120.2	16.1	1.000002
112000.0	6.9	-33.7	0.	-0. **	10.1	602.6			1.000002
112500.0	6.8	-33.6	0.	-0. **	9.9	602.7			1.000002
113000.0	6.6	-33.5	0.	-0. **	9.7	602.8			1.000002
113500.0	6.5	-33.4	0.	-0. **	9.5	603.0			1.000002
114000.0	6.4	-33.3	0.	-0. **	9.2	603.1			1.000002
114500.0	6.2	-33.2	0.	-0. **	9.0	603.2			1.000002
115000.0	6.1	-33.1	0.	-0. **	8.9	603.3			1.000002

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
20 SEPT.66 0955 HRS MST
ASCENSION NO. 728

UPPER AIR DATA
0890003903
WHITE SANDS SITE
TABLE VII

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3989.0	883.1	26.4	15.9	52.0	1019.3	676.5	120.0	5.1	1.000303
4000.0	882.8	26.3	15.7	51.7	1019.3	676.4	120.1	5.1	1.000302
4500.0	867.5	23.0	9.9	43.3	1015.1	671.9	126.8	5.6	1.000279
5000.0	852.3	21.7	9.9	46.9	1001.7	670.4	133.5	6.2	1.000276
5500.0	837.5	20.4	9.8	50.4	988.5	669.0	140.1	6.8	1.000274
6000.0	822.8	19.1	9.6	54.0	975.6	667.5	146.8	7.4	1.000270
6500.0	808.4	17.8	9.4	57.6	962.9	666.0	153.4	8.0	1.000267
7000.0	794.2	16.3	9.1	62.1	951.0	664.2	168.2	7.3	1.000264
7500.0	780.1	14.3	8.6	68.4	940.4	662.0	185.2	6.1	1.000261
8000.0	766.2	13.6	6.7	62.9	926.5	660.9	187.1	5.8	1.000252
8500.0	752.5	13.6	4.5	54.1	910.5	660.7	190.3	4.9	1.000242
9000.0	739.0	12.8	4.4	56.2	896.5	659.9	188.3	3.8	1.000238
9500.0	725.7	12.1	4.2	58.3	882.8	659.0	169.3	2.8	1.000235
10000.0	712.6	10.7	3.6	61.3	871.0	657.4	143.7	2.5	1.000231
10500.0	699.7	9.0	2.8	64.8	860.5	655.4	118.7	2.7	1.000227
11000.0	687.0	7.9	1.6	64.4	848.5	654.0	99.3	3.8	1.000222
11500.0	674.5	7.5	-0.2	58.1	834.4	653.5	92.4	4.9	1.000215
12000.0	662.0	6.3	-1.0	59.5	822.9	651.9	90.5	6.1	1.000211
12500.0	649.9	5.0	-1.9	61.0	811.5	650.4	95.1	7.4	1.000207
13000.0	637.9	3.7	-2.8	62.5	800.4	648.9	100.4	8.6	1.000203
13500.0	626.1	2.9	-9.6	39.2	788.6	647.6	106.4	9.6	1.000190
14000.0	614.3	1.8	-11.0	38.0	777.1	646.2	112.1	9.8	1.000186
14500.0	602.8	0.6	-11.4	40.3	765.9	644.8	117.0	9.2	1.000184
15000.0	591.5	-0.5	-11.8	42.5	754.8	643.4	119.7	6.6	1.000181
15500.0	580.4	-0.8	-18.4	25.0	741.8	642.9	98.0	3.5	1.000173
16000.0	569.4	-1.5	-21.1	20.9	729.8	642.0	62.7	0.9	1.000168
16500.0	558.5	-2.4	-21.3	22.1	718.3	640.9	6.4	3.6	1.000166
17000.0	547.9	-3.4	-21.5	23.2	707.0	639.8	344.6	5.8	1.000163
17500.0	537.5	-4.3	-21.7	24.4	696.0	638.7	354.3	7.5	1.000161
18000.0	527.2	-5.2	-22.0	25.5	685.1	637.6	358.1	8.5	1.000158

STATION ALTITUDE 3989.0 FEET MSL
20 SEPT.66 0955 HRS MST
ASCENSION NO. 728

UPPER AIR DATA
0890003903
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 135,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
18500.0	517.1	-6.9	-18.2	40.4	676.0	635.7	0.8	9.1	1.000158
19000.0	507.1	-8.0	-21.4	33.5	665.8	634.3	3.2	8.8	1.000154
19500.0	497.3	-9.1	-21.4	36.2	655.6	633.0	7.6	7.8	1.000152
20000.0	487.6	-10.1	-18.8	49.2	645.1	631.8	13.5	6.4	1.000151
20500.0	478.0	-10.8	-24.0	33.1	634.4	630.9	24.8	6.2	1.000146
21000.0	468.6	-11.6	-27.2	26.3	623.9	629.9	32.0	5.8	1.000143
21500.0	459.4	-12.3	-31.1	19.4	613.5	629.0	35.1	5.1	1.000139
22000.0	450.4	-13.2	-32.6	18.0	603.5	627.9	25.7	4.2	1.000137
22500.0	441.4	-14.2	-31.4	21.9	593.7	626.7	9.7	3.2	1.000135
23000.0	432.7	-15.2	-30.6	25.8	584.2	625.5	341.5	2.3	1.000133
23500.0	424.0	-16.2	-31.6	25.5	574.7	624.3	325.2	2.3	1.000131
24000.0	415.5	-17.2	-33.4	23.2	565.4	623.1	315.2	2.9	1.000128
24500.0	407.2	-18.1	-35.2	21.0	556.2	621.9	317.4	4.9	1.000126
25000.0	399.0	-19.0	-37.3	18.3	546.9	620.8	319.5	7.3	1.000123
25500.0	390.9	-19.3	-41.0	12.8	536.4	620.5	321.4	9.9	1.000120
26000.0	382.9	-20.0	-43.8	10.1	527.0	619.6	317.7	12.5	1.000118
26500.0	375.0	-21.2	-44.7	10.2	518.5	618.1	313.6	14.5	1.000116
27000.0	367.3	-22.4	-45.5	10.3	510.2	616.7	310.0	14.9	1.000114
27500.0	359.7	-23.5	-46.3	10.4	502.1	615.2	308.5	15.3	1.000112
28000.0	352.3	-24.7	-47.2	10.5	494.0	613.8	308.3	15.8	1.000111
28500.0	345.0	-25.9	-48.0	10.7	486.2	612.3	309.8	15.5	1.000109
29000.0	337.9	-27.1	-48.9	10.8	478.4	610.8	311.2	15.3	1.000107
29500.0	331.0	-28.2	-49.7	10.9	470.8	609.4	311.7	16.2	1.000105
30000.0	324.1	-29.5	-51.0	10.6**	463.3	607.9	309.5	16.7	1.000104
30500.0	317.1	-30.8	-53.5	9.0**	455.9	606.2	303.8	17.0	1.000102
31000.0	310.3	-32.1	-56.1	7.4**	448.6	604.5	300.1	17.8	1.000100
31500.0	303.7	-33.4	-59.1	5.7**	441.4	602.9	297.8	18.8	1.000098
32000.0	297.2	-34.8	-62.6	4.1**	434.3	601.2	296.9	19.5	1.000097
32500.0	290.8	-36.1	-67.2	2.5**	427.4	599.5	296.4	20.1	1.000095
33000.0	284.6	-37.4	-74.9	0.9**	420.6	597.8	297.1	21.0	1.000094

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
20 SEPT.66 0935 HRS MST
ASCENSION NO. 728

UPPER AIR DATA
0890003903
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
33500.0	278.4	-38.7	0.	-0. **	413.6	596.3	297.1	21.8	1.000092
34000.0	272.2	-39.7	0.	-0. **	406.3	594.9	295.6	22.7	1.000090
34500.0	266.2	-40.8	0.	-0. **	399.1	593.5	293.9	23.8	1.000089
35000.0	260.2	-41.9	0.	-0. **	392.1	592.1	292.0	24.9	1.000087
35500.0	254.5	-43.0	0.	-0. **	385.2	590.7	290.8	26.8	1.000086
36000.0	248.8	-44.1	0.	-0. **	378.4	589.4	289.7	28.9	1.000084
36500.0	243.3	-45.1	0.	-0. **	371.8	588.0	289.8	28.9	1.000083
37000.0	237.9	-46.2	0.	-0. **	365.2	586.6	289.9	29.0	1.000081
37500.0	232.4	-47.3	0.	-0. **	358.4	585.2	289.8	29.3	1.000080
38000.0	226.9	-48.3	0.	-0. **	351.6	583.9	289.2	29.4	1.000078
38500.0	221.6	-49.3	0.	-0. **	344.9	582.5	288.1	29.2	1.000077
39000.0	216.4	-50.4	0.	-0. **	338.4	581.2	286.6	30.2	1.000075
39500.0	211.3	-51.4	0.	-0. **	332.0	579.8	284.8	31.7	1.000074
40000.0	206.3	-52.4	0.	-0. **	325.7	578.5	283.9	33.1	1.000073
40500.0	201.5	-53.5	0.	-0. **	319.6	577.1	283.3	34.4	1.000071
41000.0	196.8	-54.5	0.	-0. **	313.5	575.8	283.7	34.6	1.000070
41500.0	192.1	-55.5	0.	-0. **	307.6	574.4	284.3	34.8	1.000069
42000.0	187.6	-56.6	0.	-0. **	301.8	573.0	285.2	34.7	1.000067
42500.0	183.2	-57.6	0.	-0. **	296.2	571.7	285.9	34.4	1.000066
43000.0	178.9	-58.6	0.	-0. **	290.6	570.3	286.3	33.8	1.000065
43500.0	174.7	-59.7	0.	-0. **	285.2	568.9	286.6	33.4	1.000064
44000.0	170.6	-60.7	0.	-0. **	279.8	567.5	286.9	33.3	1.000062
44500.0	166.6	-61.7	0.	-0. **	274.6	566.2	287.1	33.2	1.000061
45000.0	162.7	-62.8	0.	-0. **	269.5	564.8	287.1	33.0	1.000060
45500.0	158.8	-63.8	0.	-0. **	264.3	563.4	287.9	33.4	1.000059
46000.0	154.9	-64.7	0.	-0. **	258.8	562.2	289.1	33.9	1.000058
46500.0	151.0	-65.5	0.	-0. **	253.4	561.0	290.3	33.4	1.000056
47000.0	147.2	-66.4	0.	-0. **	248.2	559.8	291.6	32.4	1.000055
47500.0	143.6	-67.3	0.	-0. **	243.0	558.6	292.9	31.6	1.000054
48000.0	140.0	-68.2	0.	-0. **	238.0	557.4	294.2	30.8	1.000053

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
20 SEPT.66 0955 HRS MST
ASCENSION NO. 728

UPPER AIR DATA
0800003903
WHITE SANDS SITE
TABLE VII (Cont.)

WSTN SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
48500.0	136.5	-69.1	0.	-0. **	233.1	556.2	294.1	29.5	1.000052
49000.0	133.1	-70.0	0.	-0. **	228.3	555.0	293.5	28.0	1.000051
49500.0	129.8	-70.9	0.	-0. **	223.6	553.8	293.4	26.7	1.000050
50000.0	126.5	-71.8	0.	-0. **	218.9	552.5	293.3	25.5	1.000049
50500.0	123.4	-72.4	0.	-0. **	214.2	551.6	296.5	23.2	1.000048
51000.0	120.3	-72.1	0.	-0. **	208.4	552.1	300.1	20.7	1.000046
51500.0	117.2	-71.8	0.	-0. **	202.8	552.5	306.1	17.0	1.000045
52000.0	114.2	-71.5	0.	-0. **	197.4	552.9	312.6	13.1	1.000044
52500.0	111.4	-71.2	0.	-0. **	192.1	553.3	309.6	9.8	1.000043
53000.0	108.5	-70.9	0.	-0. **	187.0	553.8	302.3	6.8	1.000042
53500.0	105.8	-70.6	0.	-0. **	182.0	554.2	279.6	4.9	1.000041
54000.0	103.1	-70.3	0.	-0. **	177.1	554.6	245.2	4.0	1.000039
54500.0	100.5	-70.0	0.	-0. **	172.3	555.0	209.8	4.0	1.000038
55000.0	98.0	-69.5	0.	-0. **	167.7	555.6	173.7	4.9	1.000037
55500.0	95.6	-69.1	0.	-0. **	163.2	556.3	147.3	6.2	1.000036
56000.0	93.3	-68.6	0.	-0. **	158.8	556.9	128.5	7.7	1.000035
56500.0	91.0	-68.1	0.	-0. **	154.6	557.5	116.8	8.5	1.000034
57000.0	88.7	-67.7	0.	-0. **	150.4	558.2	110.6	8.8	1.000033
57500.0	86.5	-67.2	0.	-0. **	146.4	558.8	101.9	9.0	1.000033
58000.0	84.4	-66.7	0.	-0. **	142.5	559.5	90.1	9.0	1.000032
58500.0	82.3	-66.2	0.	-0. **	138.7	560.1	79.8	9.4	1.000031
59000.0	80.3	-65.8	0.	-0. **	135.0	560.7	74.0	11.2	1.000030
59500.0	78.3	-65.3	0.	-0. **	131.3	561.4	68.3	13.0	1.000029
60000.0	76.4	-64.8	0.	-0. **	127.8	562.0	71.9	15.5	1.000028
60500.0	74.5	-64.4	0.	-0. **	124.4	562.6	75.5	18.1	1.000028
61000.0	72.7	-63.9	0.	-0. **	121.1	563.2	77.4	18.8	1.000027
61500.0	70.9	-63.4	0.	-0. **	117.8	563.9	78.7	19.0	1.000026
62000.0	69.2	-63.0	0.	-0. **	114.7	564.5	82.3	19.3	1.000026
62500.0	67.5	-62.5	0.	-0. **	111.6	565.1	89.2	19.5	1.000025
63000.0	65.8	-62.0	0.	-0. **	108.6	565.8	96.1	19.8	1.000024

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
20 SEPT.66 0955 HRS MST
ASCENSION NO. 728

UPPER AIR DATA
0890003903
WHITE SANDS SITE
TABLE VII (Cont)

WSTN SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
63500.0	64.2	-61.6	0.	-0. **	105.7	566.4	101.0	18.2	1.000024
64000.0	62.6	-61.1	0.	-0. **	102.9	567.0	105.9	16.7	1.000023
64500.0	61.1	-60.6	0.	-0. **	100.1	567.6	109.0	14.7	1.000022
65000.0	59.6	-60.3	0.	-0. **	97.6	568.1	111.2	12.6	1.000022
65500.0	58.2	-60.0	0.	-0. **	95.2	568.5	108.0	10.8	1.000021
66000.0	56.9	-59.7	0.	-0. **	92.8	568.9	96.8	9.4	1.000021
66500.0	55.5	-59.4	0.	-0. **	90.5	569.3	87.1	8.6	1.000020
67000.0	54.2	-59.1	0.	-0. **	88.2	569.7	82.1	9.9	1.000020
67500.0	52.9	-58.8	0.	-0. **	86.0	570.1	77.6	11.2	1.000019
68000.0	51.7	-58.5	0.	-0. **	83.9	570.5	84.4	12.6	1.000019
68500.0	50.5	-58.2	0.	-0. **	81.8	570.9	91.1	14.1	1.000018
69000.0	49.3	-57.9	0.	-0. **	79.8	571.3	89.0	14.5	1.000018
69500.0	48.1	-57.6	0.	-0. **	77.8	571.7	85.3	14.7	1.000017
70000.0	47.0	-57.3	0.	-0. **	75.8	572.1	81.8	14.9	1.000017
70500.0	45.9	-57.0	0.	-0. **	73.9	572.5	78.6	15.0	1.000016
71000.0	44.8	-56.7	0.	-0. **	72.1	572.9	75.4	15.2	1.000016
71500.0	43.7	-56.4	0.	-0. **	70.3	573.3	72.9	16.0	1.000016
72000.0	42.7	-56.1	0.	-0. **	68.5	573.7	70.5	16.9	1.000015
72500.0	41.7	-55.8	0.	-0. **	66.8	574.1	69.7	17.5	1.000015
73000.0	40.7	-55.5	0.	-0. **	65.2	574.5	72.8	17.5	1.000014
73500.0	39.8	-55.2	0.	-0. **	63.5	574.9	75.9	17.5	1.000014
74000.0	38.8	-54.9	0.	-0. **	62.0	575.3	78.3	17.7	1.000014
74500.0	37.9	-54.6	0.	-0. **	60.4	575.7	80.6	17.9	1.000013
75000.0	37.0	-54.2	0.	-0. **	58.9	576.1	83.0	18.0	1.000013
75500.0	36.1	-53.9	0.	-0. **	57.4	576.5	85.8	18.2	1.000013
76000.0	35.3	-53.6	0.	-0. **	56.0	576.9	88.7	18.3	1.000012
76500.0	34.5	-53.3	0.	-0. **	54.6	577.3	91.2	17.8	1.000012
77000.0	33.6	-53.0	0.	-0. **	53.2	577.7	93.4	16.7	1.000012
77500.0	32.8	-52.7	0.	-0. **	51.9	578.1	95.6	15.7	1.000012
78000.0	32.1	-52.4	0.	-0. **	50.6	578.5	93.0	14.9	1.000011

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
20 SEPT.66 0955 HRS MST
ASCENSION NO. 728

UPPER AIR DATA
0890003903
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
78500.0	31.3	-51.8	0.	-0. **	49.3	579.3	90.0	14.2	1.000011
79000.0	30.6	-51.2	0.	-0. **	48.1	580.1	87.1	13.5	1.000011
79500.0	29.9	-50.6	0.	-0. **	46.9	580.9	84.7	13.2	1.000010
80000.0	29.2	-50.0	0.	-0. **	45.7	581.6	82.2	12.8	1.000010
80500.0	28.6	-49.4	0.	-0. **	44.5	582.4	80.9	12.8	1.000010
81000.0	27.9	-48.8	0.	-0. **	43.4	583.2	80.3	13.1	1.000010
81500.0	27.3	-48.2	0.	-0. **	42.3	584.0	79.8	13.3	1.000009
82000.0	26.7	-47.6	0.	-0. **	41.2	584.8	80.1	13.4	1.000009
82500.0	26.1	-47.0	0.	-0. **	40.1	585.6	80.4	13.4	1.000009
83000.0	25.5	-47.1	0.	-0. **	39.2	585.5	80.6	13.4	1.000009
83500.0	24.9	-47.2	0.	-0. **	38.4	585.3	80.0	13.6	1.000009
84000.0	24.3	-47.4	0.	-0. **	37.5	585.0	79.5	13.7	1.000008
84500.0	23.8	-47.6	0.	-0. **	36.7	584.8	80.2	14.2	1.000008
85000.0	23.2	-47.8	0.	-0. **	35.9	584.6	82.5	14.9	1.000008
85500.0	22.7	-47.9	0.	-0. **	35.1	584.3	84.8	15.6	1.000008
86000.0	22.2	-48.1	0.	-0. **	34.4	584.1	86.7	15.9	1.000008
86500.0	21.7	-48.3	0.	-0. **	33.6	583.9	88.4	15.8	1.000007
87000.0	21.2	-48.5	0.	-0. **	32.9	583.7	90.1	15.8	1.000007
87500.0	20.7	-48.6	0.	-0. **	32.1	583.4	91.7	15.7	1.000007
88000.0	20.2	-48.8	0.	-0. **	31.4	583.2	93.3	15.6	1.000007
88500.0	19.8	-49.0	0.	-0. **	30.7	583.0	94.9	15.6	1.000007
89000.0	19.3	-49.2	0.	-0. **	30.1	582.7	96.4	15.5	1.000007
89500.0	18.9	-49.2	0.	-0. **	29.4	582.7	95.7	14.4	1.000007
90000.0	18.5	-48.7	0.	-0. **	28.7	583.4	94.7	13.2	1.000006
90500.0	18.1	-48.1	0.	-0. **	28.0	584.1	93.7	11.9	1.000006
91000.0	17.7	-47.6	0.	-0. **	27.3	584.8	91.1	11.3	1.000006
91500.0	17.3	-47.1	0.	-0. **	26.6	585.4	87.1	11.2	1.000006
92000.0	16.9	-46.6	0.	-0. **	26.0	586.1	83.1	11.1	1.000006
92500.0	16.5	-46.1	0.	-0. **	25.3	586.8	79.0	11.0	1.000006
93000.0	16.1	-45.5	0.	-0. **	24.7	587.4	74.0	11.3	1.000005

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
20 SEPT.66 0955 HRS MST
ASCENSION NO. 728

UPPER AIR DATA
0890003903
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
93500.0	15.8	-45.0	0.	-0. **	24.1	588.1	69.0	11.5	1.000005
94000.0	15.4	-44.5	0.	-0. **	23.5	588.8	64.0	11.8	1.000005
94500.0	15.1	-44.0	0.	-0. **	22.9	589.4	60.3	12.8	1.000005
95000.0	14.7	-43.5	0.	-0. **	22.4	590.1	57.0	14.1	1.000005
95500.0	14.4	-43.0	0.	-0. **	21.8	590.8	53.7	15.3	1.000005
96000.0	14.1	-42.4	0.	-0. **	21.3	591.4	51.4	16.4	1.000005
96500.0	13.8	-41.9	0.	-0. **	20.8	592.1	51.0	17.1	1.000005
97000.0	13.5	-41.4	0.	-0. **	20.2	592.8	50.5	17.8	1.000005
97500.0	13.2	-40.9	0.	-0. **	19.7	593.4	50.0	18.6	1.000004
98000.0	12.9	-40.6	0.	-0. **	19.3	593.7	53.6	18.1	1.000004
98500.0	12.6	-40.7	0.	-0. **	18.9	593.6	57.2	17.7	1.000004
99000.0	12.3	-40.8	0.	-0. **	18.5	593.5	60.8	17.3	1.000004
99500.0	12.0	-41.0	0.	-0. **	18.1	593.3	63.8	17.0	1.000004
100000.0	11.8	-41.1	0.	-0. **	17.7	593.2	66.5	17.0	1.000004
100500.0	11.5	-41.2	0.	-0. **	17.3	593.1	69.1	16.9	1.000004
101000.0	11.3	-41.3	0.	-0. **	16.9	592.9	72.6	16.9	1.000004
101500.0	11.0	-41.4	0.	-0. **	16.6	592.8	81.3	17.3	1.000004
102000.0	10.8	-41.5	0.	-0. **	16.2	592.7	90.1	17.7	1.000004
102500.0	10.5	-41.6	0.	-0. **	15.9	592.6	98.8	18.1	1.000004
103000.0	10.3	-41.7	0.	-0. **	15.5	592.4	105.0	18.5	1.000003
103500.0	10.1	-41.8	0.	-0. **	15.2	592.3	110.1	18.9	1.000003
104000.0	9.9	-41.6	0.	-0. **	14.8	592.5	115.1	19.3	1.000003
104500.0	9.6	-41.4	0.	-0. **	14.5	592.8	119.8	19.6	1.000003
105000.0	9.4	-41.1	0.	-0. **	14.2	593.1	120.5	19.7	1.000003
105500.0	9.2	-40.9	0.	-0. **	13.8	593.4	121.2	19.7	1.000003
106000.0	9.0	-40.6	0.	-0. **	13.5	593.8	121.9	19.7	1.000003
106500.0	8.8	-40.4	0.	-0. **	13.2	594.1	123.6	19.8	1.000003
107000.0	8.6	-40.1	0.	-0. **	12.9	594.4	128.3	20.0	1.000003
107500.0	8.4	-39.9	0.	-0. **	12.6	594.7	132.9	20.2	1.000003
108000.0	8.3	-39.6	0.	-0. **	12.3	595.0	137.5	20.4	1.000003

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
20 SEPT.66 0955 HRS MST
ASCENSION NO. 728

UPPER AIR DATA
0890003903
WHITE SANDS SITE
TABLE VII (Cont)

WSTN SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
108500.0	8.1	-39.4	0.	-0. **	12.0	595.4			1.000003
109000.0	7.9	-39.1	0.	-0. **	11.8	595.7			1.000003
109500.0	7.7	-38.8	0.	-0. **	11.5	596.0			1.000003
110000.0	7.6	-38.6	0.	-0. **	11.2	596.3			1.000002
110500.0	7.4	-38.3	0.	-0. **	11.0	596.7			1.000002
111000.0	7.2	-38.1	0.	-0. **	10.7	597.0			1.000002
111500.0	7.1	-37.8	0.	-0. **	10.5	597.3			1.000002

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

RELEASE TIME (MST)		SECOND-STAGE IMPACT DISPLACEMENT IN MILES DUE TO WIND								AZIMUTH (DEGREES)	THEORETICAL IMPACT FROM LAUNCHER (IN MILES)		
		11-216 FT		216-4000 FT		4000-96000 FT		TOTAL					
RAWINSONDE	PIBAL	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W		RANGE	N-S	E-W
0615	0700	1.0N	0.0	4.7N	5.1E	0.8N	12.0W	2.3N	6.9W	355.4	100.5	100.2N	8.1W
0615	0730	2.8N	0.7E	0.2N	4.8E	0.8N	12.0W	3.8N	6.5W	355.7	102.0	101.7N	7.7W
0615	0800	1.5N	0.8W	1.6N	3.4E	0.8N	12.0W	4.0N	9.4W	354.1	102.5	101.9N	10.6W
0615	0815	0.1N	0.4W	2.3S	4.7E	0.8N	12.0W	1.4S	7.6W	354.8	97.7	96.5N	8.8W
0615	0830	1.1S	0.7E	3.1S	7.2E	0.8N	12.0W	3.3S	4.1W	356.8	94.7	94.6N	5.3W
0615	0840	3.3S	2.7E	5.9S	3.7E	0.8N	12.0W	8.3S	5.6W	355.7	89.9	89.6N	6.9W
0615	0850	5.7S	3.3E	6.3S	5.3E	0.8N	12.0W	11.2S	3.4W	357.0	86.8	86.7N	4.6W
0615	0857	4.7S	0.4W	6.8S	5.7E	0.8N	12.0W	10.7S	6.6W	354.9	87.6	87.2N	7.8W
* 0955	0919	3.5S	0.8E	8.8S	6.8E	2.5N	10.8W	9.8S	3.2W	357.1	88.2	88.1N	4.4W

*Post Shoot Winds

	AZIMUTH (DEGREES)	MILES FROM LAUNCHER		
		RANGE	N-S	E-W
LAUNCHER SETTING (ELEVATION 83.1 DEGREES QE)	002.2	98.0	97.9N	3.8E
NO WIND IMPACT	359.7	97.9	97.9N	1.2W
PREDICTED IMPACT	357.6	69.6	69.6N	2.9W
ACTUAL IMPACT	344.5	97.5	94.0N	26.1W
PREDICTED BOOSTER IMPACT	002.0	1.4	1.4N	0.0
ACTUAL BOOSTER IMPACT	N/A	N/A	N/A	N/A

TABLE VIII. IMPACT PREDICTION DATA
NIKE-HYDAC, MK 12 STV (SR-038)

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Electronics Command Fort Monmouth, New Jersey	2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED 2b. GROUP

3. REPORT TITLE

METEOROLOGICAL DATA REPORT, NIKE-HYDAC MK 12 STV (SR-038)

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)

5. AUTHOR(S) (Last name, first name, initial)

SHARPE, John M

6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1966	24	None

8a. CONTRACT OR GRANT NO. b. PROJECT NO. c. DA Task 1V650212A127-02 d.	9a. ORIGINATOR'S REPORT NUMBER(S) DR-99 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)

10. AVAILABILITY/LIMITATION NOTICES

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11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY
	U. S. Army Electronics Command Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico

13. ABSTRACT

Meteorological data gathered for the launching of Nike-Hydac, MK 12 STV (SR-038) are presented for the Air Force Ballistic Missile Re-entry Systems Office, the General Electric Company and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.

DD FORM 1 JAN 64 1473

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Security Classification

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14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
1. Ballistics 2. Meteorology 3. Wind						

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